## REMARKS

The Official Action mailed December 22, 2008 has been carefully considered. Claims 6, 7 and 11-16 are pending in the present application and stand rejected. Reconsideration and allowance of the subject application, as amended, are respectfully requested.

### Claim Rejections Under 35 USC §103

Claims 6-7 and 11-16 stand rejected under 35 USC §103 as being unpatentable over *Dorfman*, U.S. Patent No. 4,822,415 and in further view of *Branagan et al*, U.S. Patent No. 6,125,812.

As the Examiner may notice, the claims have not been amended, as it is believed that the claims, as pending, recite patentable subject matter over the art of record. In particular, as set forth in the discussion below, there are several issues regarding the limitations of *Dorfman*, either alone or in combination with *Branagan*. Among those, the feature in the pending claims of coating thickness in connection with an HVOF system, and associated bond strength, are simply not believed to be disclosed or suggested by the art of record. Applicant respectfully requests the Examiner to therefore consider the following remarks.

*Dorfman* has been cited with respect to the fact that his coatings (**not** produced by HVOF) may be "up to 1.3mm thick." Col. 5, lines 59-61. *Dorfman* relies upon **flame spraying** (col. 1, lines 11-16), which has been the simplest of all thermal spray procedures and involves feeding a powder through a combustion type gun at low velocity with particle velocities typically from 200 to 800 ft/s.

HVOF (again, not mentioned by *Dorfman*) is known by those skilled in the art to provide much higher velocities (4000 to 4500 ft/s) as well as utilizing relatively low combustion temperatures (~5,000 F) which *Dorfman* simply overlooked in its entirety. Viewed in the context, it is submitted that *Dorfman* informs one skilled in the art that the alloys therein are applicable to flame spray techniques, not HVOF. One skilled in the art looking at *Dorfman* when filed in 1985 (prior to the commercialization of HVOF technology), as well as even today, would not believe that the alloys therein were suitable for HVOF.

Applicants understand that the Office Action turns to *Branagan* for the proposition that the iron based alloy compositions therein (not including manganese) may be suitable for HVOF and that *Branagan* would utilize *Dorfman's* alloys to HVOF applications. This is not believed to be the case for the reasons noted above. In addition, even if that is the case, the point is that the combination of *Dorfman* with *Branagan*, leads the skilled person to believe that manganese should not be part of an HVOF system, particular as manganese is merely optional in *Dorfman*.

Perhaps more basically, Applicant notes that the Office Action stated at page 7 that the thickness and bond strengths recited in the present claims may be considered a "result effective variable" which can be manipulated by coating time, and that thickness would be manipulated to achieve desired properties.

In connection with such assertion, it is noted that *Dorfman* teaches that his flame spray procedure (**not** HVOF) could achieve a thickness of "up to 1.3 mm" and *Branagan* (who does not teach or suggest the use of manganese) reports that thickness may be 20 to 80 microns (see Example I of *Branagan* at column 6, lines 37-42). Any way you combine such teachings does not lead to an HVOF coating containing manganese at a thickness of 40 to 110 mils that provides a confirmed bond strength of at least about 12,000 psi.

In addition, with respect to the suggestion that the 40 to 110 mils is a "results effective variable" the present specification teaches that the ASTM C633 standard that was used to provide the recited bond strengths states that the coating be a 0.015 inches (15 mils) and tests are carried out on coating sprayed to such thicknesses. This is to ensure that when evaluating for failure, the failure is one that occurs at the coating/metal substrate interface.

As then noted in the present application, coatings of 40-110 mils all indicated bond strengths of at least 12,000 psi, and "the results of the tests were remarkable because when failure of the coating was observed, the coating generally failed due to a critical flaw arising from the spray process." See, paragraph **[0021]** of the published application. The specification goes no to report that "the failure of the coatings, when failure was found, did not generally occur at the coating/metal substrate surface, indicating an extremely effective metallurgical bond which is formed as a result of the cleansing of the native oxide layer of the substrate." See again, paragraph [0021] of the published application.

Accordingly, the prior art of record (*Dorfman*), while teaching coatings of up to 1.3 mm for **non** HVOF coatings, did not identify that one could provide HVOF coatings at 40-110 mils with bond strengths of at least 12,000 psi. *Branagan*, who does mention HVOF, **without the use of manganese,** and at thickness of only 20-80 microns (0.79 mils to 3.14 mils), also did **not** teach of suggest HVOF coatings at 40-110 mils with bond strengths of at least 12,000 psi. And, the combination of *Dorfman* with *Branagan* similar does not establish such thickness and bond strength characteristics.

As noted, Applicant did not amend the claims on the basis that the claims as discussed above, are believed to recite patentable subject matter over the art of record. Therefore, having dealt with all the objections raised by the Examiner, it is respectfully submitted that the present application is in condition for allowance.

If the Examiner desires personal contact for further disposition of this case, the Examiner is invited to call the undersigned Attorney at 603.668.6560.

In the event there are any fees due, please charge them to our Deposit Account No. 50-2121.

Respectfully submitted,

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